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EXPERIMENTAL STATION

SUFFIELD ALBERTA

Suffield FE Book
Index March

ABSTRACTED BY DRB
FEB - 3 1953
Dup Deal

FIELD EXPERIMENT NO. 255

Regimental Shoot with 25 pr. HE/Chem. Shell charged Mustard Gas

DEFENCE SCIENTIFIC INFORMATION SERVICE
DEFENCE RESEARCH BOARD
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1. REFERENCE

Z.4813
D.C.W. & S. Project No. S.48

2. OBJECT

To carry out a full scale test of the method of attacking a target with HE/Chem. shell laid down in Artillery Training Vol. III Pam. 5.

A regiment of 25 pr. guns will be used and will be manned by crews from a training centre. The Officers will not have fired HE/Chem. shell prior to this shoot.

The charging used will be Y6 since this is most representative of available ammunition. The shell will consist of a mixture of Mks. I to VII in which Mk. VII will predominate.

3. SITE

Artillery Target. C - 4.

4. MATERIAL

648 Shell 25 pr. HE/Chem. charged Y6, with standard head-filling and fuzed 221 (from 900 shell provided by U.K.).

3 additional shell fitted with thermometers.

162 shell 25 pr. HE/Chem. Mk. VII (any charging) for rehearsal and ranging.

Shell 25 pr. H.E. for ranging (as required).

Cartridges Charge III (as required).

24 - 25 pr. guns.

Fuzes will be provided from a lot of which the proof results are known.

5. WEATHER

Wind speed: 5 - 15 mi/hr. to 1000 feet.
Wind Direction N. to S. through W.
Air Temperature: 50° - 80°F.

6. PROCEDURE

(i) All shell will be taken to the field prior to the trial and stored under well ventilated tarpaulins.

(ii) When moved to the gun positions they will be shaded from the sun until fired.

(iii) The three shell fitted with thermometers will be allotted to three representative gun positions. The temperature of the chargings at the time of firing will be recorded. (O.M. & E.).

6. PROCEDURE (cont.)

(iv) The viscosity of the charging in three shell taken at random from the stock of shell for which the programme rounds were drawn will be recorded (O.M. & E.). A sample from each will be forwarded to P. & M.S.

Layout

(v) A target box 700 yards by 500 yards will be chosen and a layout of small jump cards on a 10 yard grid will be put down over this area and over a frame 300 yards deep. (See Appendix).

(vi) A 15 ft. photographic marker will be erected at the centre of the target and further markers will be erected parallel to the line of fire to indicate the limits of the target box and the complete layout.

(vii) Point G will also be identified by a suitable marker.

(viii) Gun positions will be chosen so that the target box is engaged from a range of 6000 to 7000 yards.

(ix) An O.P. will be selected as far forward as would be possible under battle conditions.

Lines of Fire

(x) The line of fire for the guns will be approximately parallel to the longer side of the target box. A battery will be allotted to each of the three lines of fire as indicated in the Appendix.

Rehearsal

(xi) A rehearsal will be carried out prior to the programme shoot. The map range to point G, the bearing of the zero line, and a meteor telegram will be given to the Adjutant four hours before zero. He will check the meteor telegram by having point G registered with HE. He will then issue a fire plan order. The G.P.O.'s will then draw up and issue a complete gun programme.

(xii) The O.P. will be manned (one M.E.O. officer to be present) and height recorders and photographers (see paras xxi to xxiv) will be in position.

(xiii) At zero each gun will fire 6 rounds HE/Chem shell at sweep 100 yards at a rate of three to four rounds per minute.

(xiv) Observations on this rehearsal will be made by the O.P. officers and the method of observing heights of burst will be confirmed. The fall of rounds will be plotted to check the lines of fire of the guns.

PROGRAMME SHOOT

Meteor Telegrams

(xv) A meteor telegram will be provided as close to zero as shown to be feasible by the rehearsal. This telegram will be used by the Adjutant to draw up the fire plan orders. The actual conditions during the shoot will be recorded by two telegrams one taken at the beginning and one at the end of the shoot.

Fire Plan

(xvi) On receipt of the first meteor telegram, the Adjutant will repeat the registration of point G. He will then issue fire plan orders and the G.P.O.'s will draw up and issue complete gun programmes as in the rehearsal.

(xvii) At zero the pivot gun of each battery will fire six rounds BE/Chem. shell (not programme rounds) to check the predicted fuze setting. The M.E.O. in consultation with the O.P. officers will on the bases of these shell confirm or correct the fuze setting.

(xix) Each gun will then fire 9 programme rounds at sweep 100 yards at a rate of three to four rounds per minute. The layout will then be inspected by M.E.O. and P.R.S. and if the engagement is satisfactory the remaining 18 rounds per gun will be fired at the same rate.

(xx) If the engagement is not satisfactory the trial will be cancelled and repeated on a subsequent day. Every step will be taken to determine the reason for the failure since only one such repeat is possible with the shell available.

Functioning of Shell

(xxi) Two observers will station themselves on a flank opposite the target centre. One will record the number of shell bursting to the left of the target centre and the other those bursting to the right.

(xxii) The O.M. & E. height recorder will be set up on a flank not less than 1,500 yards from the target centre. It will be adjusted so that each of its three operators cover a field of view 150 ft. high as measured at the target centre. It will be centred on the target centre and then elevated so that the horizon is the base line for the lowest observer. A fourth observer will record the number of shell bursting below the horizon.

(xxiii) Two observers will record the number of shell bursting short or long of the field of view of the O.M. & E. recorder and a further observer with window will record the number of shell bursting above the field of view of the instrument.

(xxiv) Cine photographs of the shell bursts will be taken with a camera set up on a flank not less than 1,500 yards from the target centre. (Total time of firing not more than 9 minutes.)

Meteor Data

(xxv) Full meteor data will be recorded during the shoot.

Persistence

(xxvi) If observers are available at the time of the shoot 12 will occupy the centre section of the target zone for six hours 24 hours (or sooner if Persistency tests (S.D.) indicate that grass occupation danger is not present before 24 hours) after the shoot. They will apply ointment to their hands and will wear respirators at the Gas or Alert position depending on the vapour concentration present. (If respirators are not worn at the Gas position, eyeshields will be worn.) They will dig trenches and rest on the ground for alternate hourly periods. During the resting periods half of the observers will rest on ground sheets. They will change their clothes when they leave the area.

Classification / Designation
Changed to / Remplacé par U/U
By Authority of
Sur l'Autorité de C. LaSorne
Date 25 Feb 98 Signature D. Kuseler
Appointment
Fonction

ADMINISTRATION

M.E.O.

In charge of trial. Provision of shell. Layout. Heights of burst (5 observers) in co-operation with P. & M.S. Decision as to completion of shoot (see para. xix).

P. & M.S.

Meteor telegrams. Heights of burst (4 observers). Assessment of jump cards. Plot of contaminated areas.

Phys. S.

Provision and control of observers.

O. M. & E.

Viscosity of charging. Samples of charging to P. & M.S. Particulars of shell (lot number etc.). Temperature of shell.

Photo. S.

Photographs as indicated.

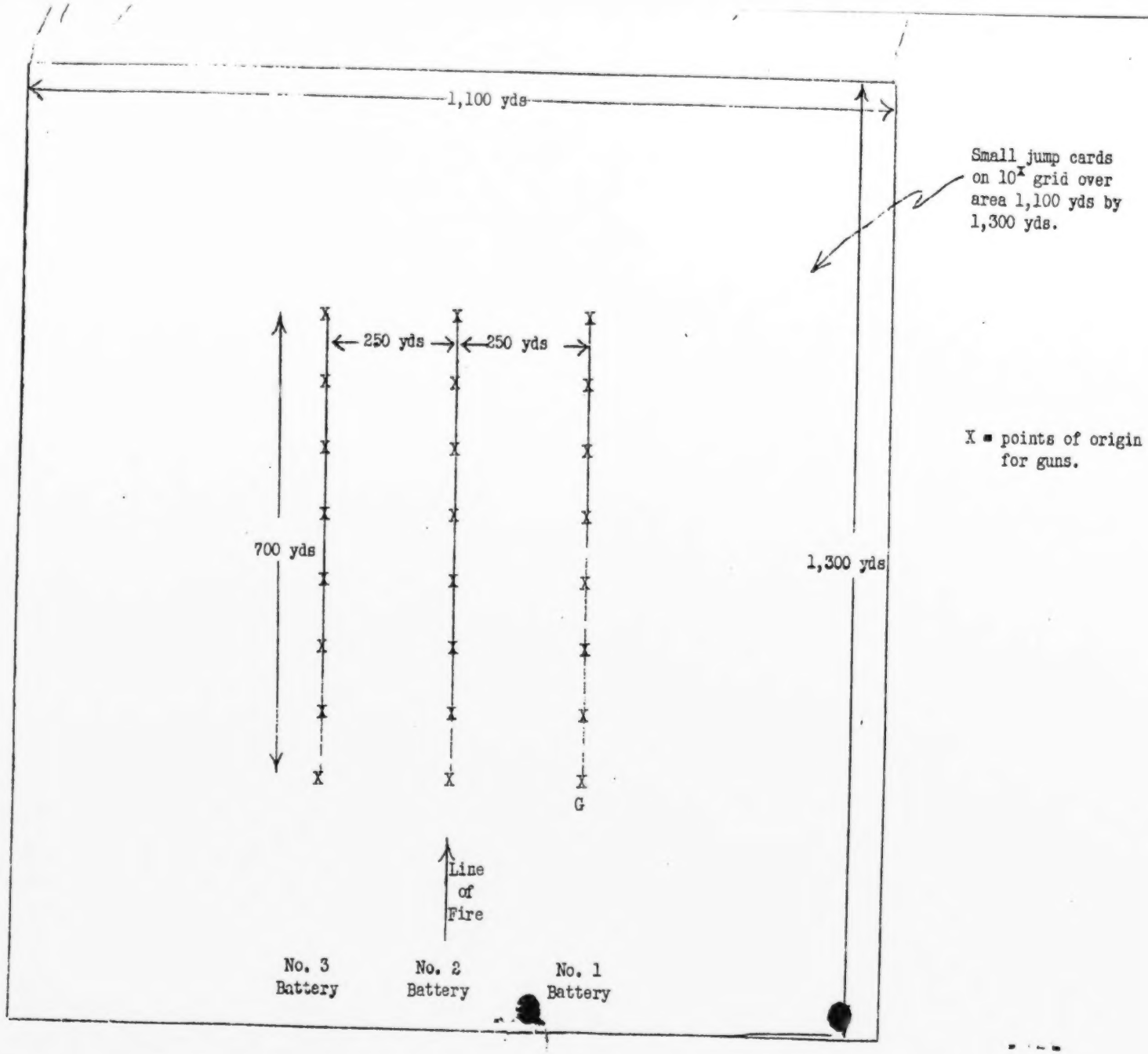
Visiting Regiment

Provision of guns. Attack of target.

H.J. Fish
(H. J. Fish)
P. R.S.

HJF:pkn

Alan R. Harpenau, R.C.A.
(J.S. Campbell) Lt. Col.
C.E.O.
Experimental Station


1,100 yds
Small jump cards on 10x grid over area 1,100 yds by 1,300 yds.
250 yds
250 yds
700 yds
1,300 yds
X = points of origin for guns.
G
Line of Fire
No. 3 Battery
No. 2 Battery
No. 1 Battery